

WHAT IS CLAIMED IS:

1. An electronic unit cooling device for cooling an electronic unit having a plurality of electronic parts, indirectly with cooling air, comprising:

a cooling panel of a hollow structure for passing the cooling air therethrough, the cooling panel including a hollow upper side flat plate portion and a hollow lower side flat plate portion connected together at a hollow side end portion, the cooling air passing through the hollow portions of the upper and lower side flat plate portions and side end portion;

a first heat receiving face formed on said upper side flat plate portion of said cooling panel and adapted to be faced by a first electronic unit; and

a second heat receiving face formed on said lower side flat plate portion of said cooling panel and adapted to be faced by a second electronic unit.

2. A cooling device according to Claim 1,

wherein said cooling panel includes: an inlet and an outlet for the cooling air; and a partition for dividing the inside of said cooling panel into a passage leading from said inlet to said outlet.

3. A cooling device according to Claim 1,

wherein said first heat receiving face includes a plane to be contacted by the upper face of said first electronic unit, and

wherein said second heat receiving face includes a plane to be contacted by the upper face of said second electronic unit.

4. A cooling device according to Claim 1,

wherein said cooling panel includes a communication passage for providing the communication between the inside of said upper side flat plate portion and the inside of said lower side flat plate portion, and

wherein an inlet of the communication passage is formed in said lower side flat plate portion whereas an outlet of the communication passage is formed in said upper side flat plate portion.

5. A cooling device according to Claim 1, further comprising:

a housing box housing said cooling panel, hermetically.

6. A cooling device according to Claim 1,

wherein the first heat receiving face is adapted to contact the first electronic unit, and

the second heat receiving face is adapted to contact the second electronic unit contact each other.

7. A cooling device according to Claim 1,

wherein the first heat receiving face is adapted to confront the first electronic unit through a clearance, and

the second heat receiving face is adapted to confront the second electronic unit through a clearance.

8. An electronic unit cooling device for housing an electronic unit having a plurality of electronic parts and for indirectly cooling said electronic unit with cooling air which is introduced from the outside and discharged to the outside, comprising:

a cooling panel of a hollow structure adapted to be faced at an outer surface by at least one electronic unit for passing the cooling air therethrough, the cooling air entering through an inlet port of the cooling panel and exiting through an outlet port of the cooling panel; and a housing box housing said cooling panel and said electronic unit and having an opening for passing the cooling air to said cooling panel, said opening accommodating both the inlet port and outlet port of the cooling panel.

9. A cooling device according to Claim 8, further comprising:

an inlet and an outlet formed to communicate with the inside of said cooling panel and protruding from said opening to the outside of said housing box; and

a seal member for sealing said inlet and outlet and said opening.

10. A cooling device according to Claim 9, further comprising:
a partition disposed in said cooling panel for defining a passage from said inlet to said outlet.

11. A cooling device according to Claim 8,
wherein said cooling panel includes: a first panel unit adapted to be faced by a first electronic unit; a second panel unit arranged at a predetermined spacing on the upper side of said first panel unit and adapted to be faced by a second electronic unit; and a communication passage for providing the communication between said first panel unit and said second panel unit.

12. A cooling device according to Claim 11, further comprising:
an inlet and an outlet formed in one of said first panel unit and said second panel unit and communicating with the inside of one of said panel units,
wherein said communication passage includes: a first communication passage for passing the cooling air therethrough from said first panel unit to said second panel unit; and a second communication passage for passing the cooling air therethrough from said second panel unit to said first panel unit.

13. A cooling device according to Claim 8,

wherein said housing box includes: a body portion having an upward opening; and a cover member adapted to be mounted on the opening of said body portion.

14. A cooling device according to Claim 8,

wherein the cooling panel is adapted to contact the electronic unit.

15. A cooling device according to Claim 8,

wherein the cooling panel is adapted to confront the electronic unit through a clearance.

16. An electronic unit cooling device for housing an electronic unit having a plurality of electronic parts and for indirectly cooling said electronic unit with the cooling air which is introduced from the outside and discharged to the outside, comprising:

a cooling panel of a hollow structure adapted to be faced at an outer surface by at least one electronic unit for passing the cooling air therethrough, wherein said cooling panel includes: a first panel unit adapted to be faced by a first electronic unit; a second panel unit arranged at a predetermined spacing on the upper side of said first panel unit and adapted to be faced by a second electronic unit; and a communication passage for providing the communication between said first panel unit and said second panel unit;

a housing box housing said cooling panel and said electronic unit having an opening for passing the cooling air to said cooling panel; and

an inlet and an outlet formed in one of said first panel unit and said second panel unit and communicating with the inside of one of said panel units;

wherein said communication passage includes: a first communication passage for passing the cooling air therethrough from said first panel unit to said second panel unit; and a second communication passage for passing the cooling air therethrough from said second panel unit to said first panel unit.

17. A cooling device according to Claim 16, further comprising:

a partition disposed in each of said first panel unit and said second panel unit for defining and forming a series of passages leading from said inlet to said outlet.

18. An electronic unit cooling device for housing an electronic unit having a plurality of electronic parts and for indirectly cooling said electronic unit with the cooling air which is introduced from the outside and discharged to the outside, comprising:

a cooling panel of a hollow structure adapted to be faced at an outer surface by at least one electronic unit for passing the cooling air therethrough, wherein said cooling panel includes: a first panel unit adapted to be faced by a first electronic unit; a second panel unit arranged at a predetermined spacing on

the upper side of said first panel unit and adapted to be faced by a second electronic unit; and a communication passage for providing the communication between said first panel unit and said second panel unit;

a housing box housing said cooling panel and said electronic unit having an opening for passing the cooling air to said cooling panel; and

wherein said inlet and said outlet are protruded from said opening, further comprising:

a seal member for sealing said inlet and outlet and said opening.

19. A cooling device according to Claim 18,

wherein said inlet and said outlet are formed in the side face of one of said panel units and adjacent to each other.

20. A cooling device according to Claim 18, further comprising:

another opening formed in said housing box for extracting a wire connected with said electronic unit to the outside of said housing box; and

another seal member mounted in said another opening.

21. An electronic unit cooling device for housing an electronic unit having a plurality of electronic parts and for indirectly cooling said electronic unit with the cooling air which is introduced from the outside and discharged to the outside, comprising:

a cooling panel of a hollow structure adapted to be faced at an outer surface by at least one electronic unit for passing the cooling air therethrough, wherein said cooling panel includes: a first panel unit adapted to be faced by a first electronic unit; a second panel unit arranged at a predetermined spacing on the upper side of said first panel unit and adapted to be faced by a second electronic unit; and a communication passage for providing the communication between said first panel unit and said second panel unit;

a housing box housing said cooling panel and said electronic unit having an opening for passing the cooling air to said cooling panel; and

a ridge formed all over the periphery of the opening of said body portion;

a groove formed in the opening confronted by said body portion of said cover member for fitting said ridge therein; and

a seal member arranged in said groove.